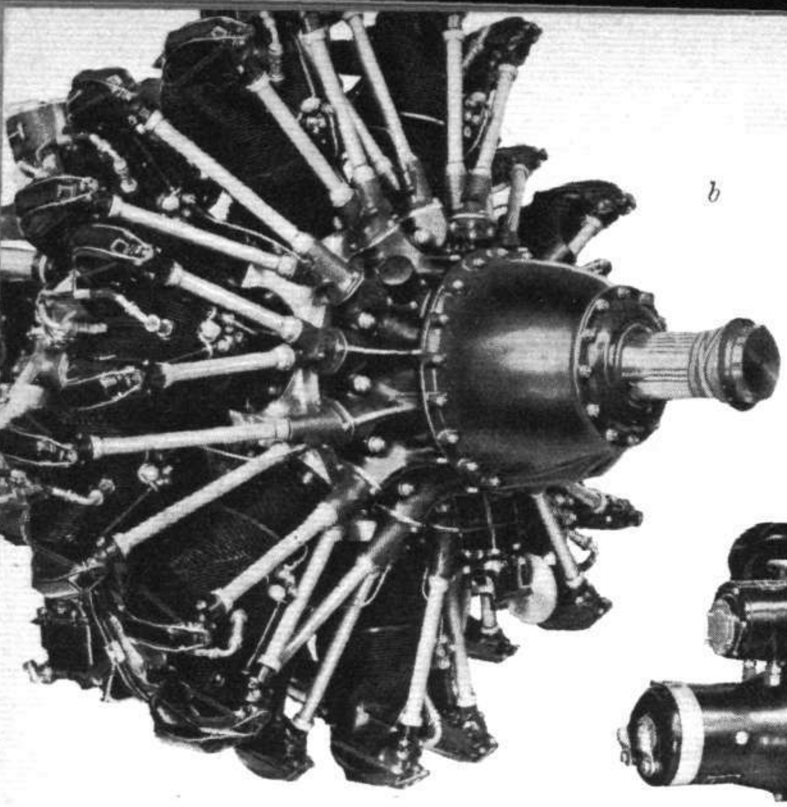
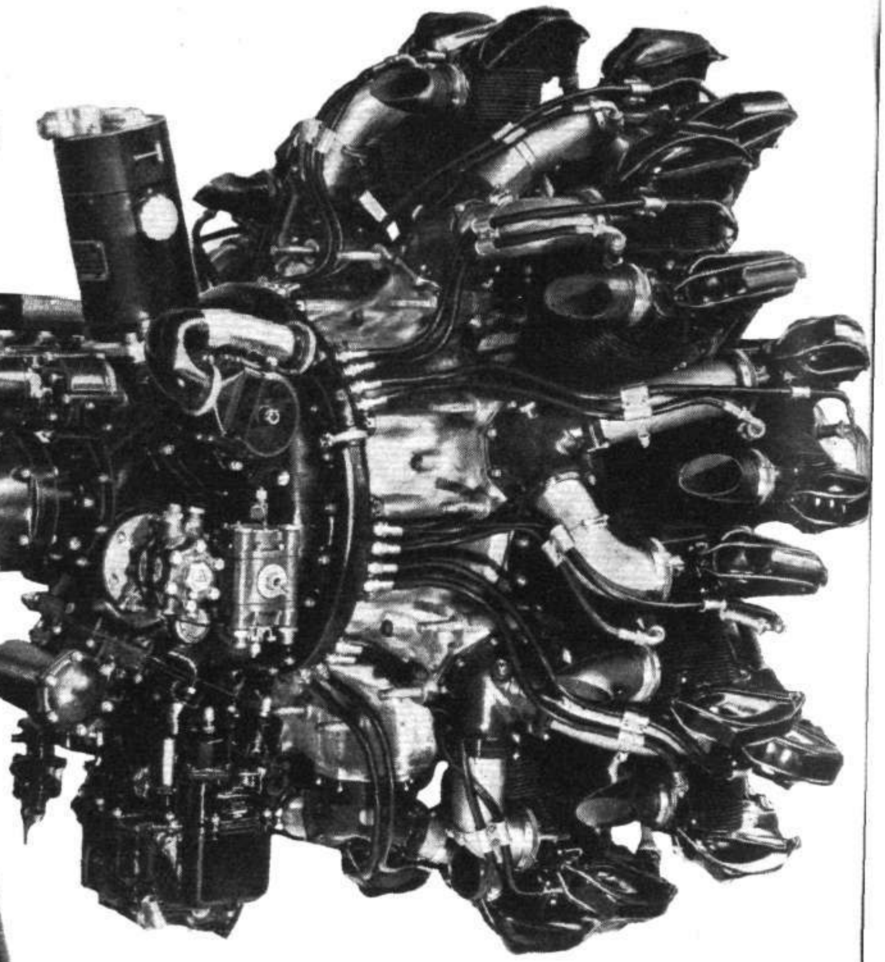
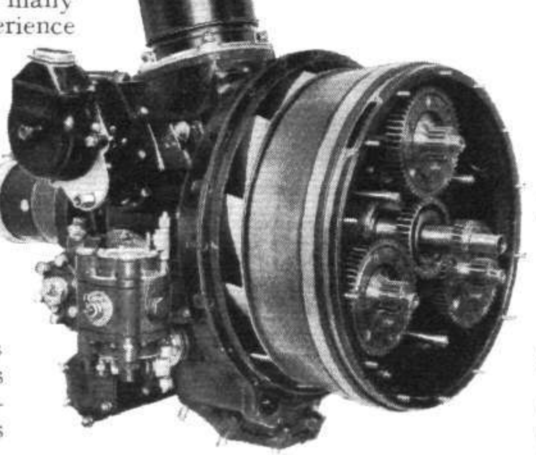




(Above) The compactness of the totally enclosed valve gear and the heavy finning of the cylinder heads are notable points of the 1,000 h.p. Pelides engines.

(Right) Striking symmetry of screened wiring and induction pipes is seen in this Pelides illustration.



The Pelides supercharger and accessory units almost assembled. Three "slipper" wheels with bronze alloy friction-driving segments are clearly visible, and the vane ring can just be seen. The Lockheed hydraulic pump is prominent.

Société des Moteurs Gnome-et-Rhone and they are now produced in a modified form. The Gnome-Rhone 18 L and 14 M are comparatively new though well-tested types, while the 14 K, now modified to 14 N, is the outcome of many years of development and experience from wide application.

Alvis and Gnome-Rhone are working in close touch with each other; the agreement not only includes the benefit of past and present knowledge, but also of future developments.

The modifications from the Gnome-Rhone engine types are necessarily extensive. In the case of the first Alvis unit to be produced, the Pelides Major, fifteeen of which are nearing completion, these modifications fall conveniently under three headings: first, the many changes made necessary by the differences in material specifications demanded by the Air Ministries of this country and France; secondly, the differences of standard threads and size of nuts compared with the size of corresponding bolts or studs (in this division must be placed the different size of standard airscrew hub and the entirely different accessories); and, thirdly, the modifications and improvements suggested by the Alvis designers.

Perhaps the least interesting question, but nevertheless a most important consideration, is that of material specification. It has made necessary the modification of almost all moving parts—the crankshaft, connecting rods and pistons—as well as the main casings, bearings and cylinders.

With a unit so compact as an aero engine, clearances between bolt heads and casings are necessarily reduced to a minimum, and French standard bolts and

MAKERS' DATA on the FIVE ALVIS TYPES

	No of Cyls.	Bore, mm.	Stroke, mm.	Capacity, litres.	Reduction Gears.	Weight, lb.	Diam., ins	Rated Speed, r.p.m.	Rated Power, h.p.	Rated Altitude, ft.	Max. Speed, r.p.m.	Max. Power, h.p.	Take-off Speed, r.p.m	Take-off Power, h.p.
Alcides ..	18	146	180	54.24	Direct 13/19 1/2	1,570 1,630 1,645	55¼	2,150	1,300	5,000	2,350	1,502	2,150	1,400
Alcides Major ..	18	146	180	54.24	Direct 13/19 1/2	1,570 1,630 1,645	55¼	2,150	1,225	13,000	2,350	1,375	2,150	1,225
Pelides ..	14	146	165	38.67	Direct 13/19 1/2	1,190 1,250 1,265	52	2,400	1,000	5,000	2,600	1,135	2,400	1,075
Pelides Major ..	14	146	165	38.67	Direct 13/19 1/2	1,190 1,250 1,265	52	2,400	1,000	12,000	2,600	1,103	2,400	1,000
Maeonides Major	14	122	116	18.98	5/7	838	$37\frac{13}{16}$	3,000	680	13,000	3,300	700	3,000	650